

## WALK SIMULATING MACHINE

### BACKGROUND OF THE INVENTION

#### 1. Field of the Invention

5           This invention relates to a walk simulating machine, particularly to one having pedals to move in a orbit a little different from that of an egg-shaped oval shape made by a conventional walk simulating machine, not to let the body of a user to incline to the  
10 front side as in the conventional walk simulating machine so that a user may use the walk simulating machine for bodily exercise in a stable posture without falling off the machine.

#### 2. Description of the Prior Art

15           A conventional walk simulating machine generally have an orbit of egg-shaped oval shape for movement of the pedals for the feet of a user to push, as shown in Fig. 1, with a comparatively pointed front portion and a comparatively dull circular rear portion  
20 (the front half portion of the walking orbit being inclining downward.) When a user treads the pedals to let the pedal connecting rod to extend upward, the body of the user may incline forward similarly to become unstable because of the center of gravity. In  
25 order to avoid inclining forward, the user may put the center of gravity on the fingers of the feet. The

walking mode with the center of gravity placed on the foot fingers is different from that of common walking mode. Moreover, walking with the center of gravity on the feet fingers for a certain period of time may harm  
5 the foot or produce cramp. So the conventional walk simulating machine is not so proper for walking exercise from the viewpoint of ergonomics.

### SUMMARY OF THE INVENTION

This invention has a purpose of offering a walk  
10 simulating machine provided with pedals to move in such an orbit that a front end portion of the orbit bends up a bit so a user's heel may land the ground first (with the center of gravity located at the heel) when a foot moves forward. Thus, a user can train  
15 walking with the center of gravity stable, and the walking orbit may conform to ergonomics.

The main feature of the invention is two pedal connect rods, and two side connecting rods fixed respectively at two sides of a horizontal rod and  
20 respectively consisting of an upper connect rod and a lower connect rod pivotally connected with each other. Further, a stop member is provided in front of each upper connect rod, and the lower ends of the lower connect rods are pivotally connected with the pedal  
25 connect rods to sway back and forth together with the pedals fixed with the pedal connect rods. The upper

and the lower connect rods sway straight  
synchronously when the upper connect rod does not  
collide with the stop members, and the lower connect  
rods only sway solely when the upper connect rods  
5 collide with and are stopped by the stop members.  
Therefore, the walking orbit that the front ends of the  
pedal connecting rods form is different in the two  
conditions just mentioned so the walking orbit may  
have the front end portion bending up a little, letting  
10 a user of the machine may exercise walking stably,  
with the heels of the feet landing on the ground first,  
conforming to ergonomics.

#### BRIEF DESCRIPTION OF DRAWINGS

This invention will be better understood by  
15 referring to the accompanying drawings, wherein:

Figure 1 is a perspective view of a moving orbit  
generated by a conventional walk simulating machine;

Figure 2 is a perspective view of a walk  
simulating machine in the present invention;

20 Figure 3 is side horizontal view of the walk  
simulating machine in the present invention;

Figure 4 is a partial front view of the walk  
simulating machine in the present invention;

Figure 5 is an upper view of the front portion of  
25 the walk simulating machine in the present invention;

Figure 6A is a front view of a slope adjuster in a

horizontal condition in the present invention;

Figure 6B is a front view of the slope adjuster in a slope-up condition in the present invention;

Figure 6C is a front view of the slope adjuster in  
5 a sloped-up condition in the present invention;

Figure 7 is a perspective view of a walking orbit generated by the walk simulating machine in the horizontal condition in the present invention;

Figure 8 is side view of the walk simulating  
10 machine with pedals moving in a sloping-up condition in the present invention;

Figure 9 is a perspective view of walking orbit generated by the walk simulating machine in a sloping-up condition in the present invention;

15 Figure 10 is a side view of the walk simulating machine with pedals moving in sloping-down condition in the present invention; and,

Figure 11 is a perspective view of a walking orbit generated by the walk simulating machine in a  
20 sloping-down condition in the present invention.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

A preferred embodiment of a walk simulating machine in the present invention, as shown in Figs. 2  
25 and 3, includes a base 10, a crank unit 20, a front post 30, two pedal connecting rods 40, two side connect

rods 50, two connect rods 60, and a slope adjuster 70 as main components combined together.

The base 10 is to be laid on the ground to support the other components just mentioned above.

5       The crank unit 20, as shown in Fig. 3, is located on a rear portion of the base 10, having two cranks 21 respectively connected pivotally at two sides. The two cranks 21 are positioned at 180 degrees' difference.

10       The front post 30 is fixed on a front end of the base 10 extending upward, having a horizontal rod 31 extending to two sides from the upper end as shown in Figs. 2 and 4. The front post 30 further has a hand slide member 32 respectively at two outer sides, and two slide rollers 33 respectively at the outer side of  
15   the side member 32 and forming an aperture 34 between them.

      The two pedal connecting rods 40, as shown in Figs. 3, are located respectively at two sides of the base 10, having the rear end connected pivotally to  
20   one end of each crank 21, and a pedal 41 fixed on an upper surface for a user's foot to tread on.

      The two side connect rods 50, as shown in Figs. 2 and 3, are located vertically respectively at the two outer sides of the front post 30, respectively  
25   consisting of an upper connect rod 51 and a lower connect rod 52 pivotally connected with each other.

The upper connect rod 51 has its upper end pivotally connected to the horizontal rod 31, and the lower connect rod 52 has its lower end connected pivotally to the front end of the pedal connecting rod 40

5           The two hand gripping rods 60, as shown in Figs. 2 and 3, are located respectively at two sides of the front post 30, having their lower ends pivotally connected to the front ends of the pedal connecting rods 40, and the upper ends extending upward through  
10 the apertures 34 of the two slide rollers 33 as shown in Fig. 4, with their upper ends held by the hands of a user.

          The slope adjuster 70, as shown in Figs. 2 and 4, is located below the horizontal rod 31, having a slope  
15 rod 71 laterally passing through the front post 30, having two ends located at two sides of the front post 30. Two cranks 72 is fixed respectively at two ends of the slope rod 71, having the other ends respectively connected pivotally to two stop members 73 located at  
20 the front of the upper connect rods 51. The slope adjuster 70 further has a position disk 74, as shown in Figs. 4 and 6A, having one side surface fixed with a left side of the front post 30, and the other side provided with a plurality projecting curved ribs 740, a  
25 plurality of recesses 741 respectively provided alternately with the ribs 740, and an slender recess

742 formed in the curved ribs 740. Further, the slope adjuster 70 has an L-shaped adjust rod 75, as shown in Figs. 4 and 5, and the adjust rod 75 has the upper end fixed vertically with the slope rod 71, and the lower end extending forward the front post 30, moving together with the slope rod 71. Further, the slope adjuster 70 has a locking tenon 76 provided with one end 760 laterally extending through the slope rod 75 and fitting in one of the recesses 741 and pushed by a spring therein to shift. Moreover, the slope adjuster 70 has a push rod 77 with its intermediate section pivotally connected to the adjust rod 75, and one end fitting in the gap between the adjust rod 75 and the end 760 of the locking tenon 76. When the push rod 77 is pulled to the adjust rod 75, the other end of the push rod 77 moves the end 760 of the locking tenon 76 to compress the spring therein, forcing the end 760 to separate from one of the recesses 741 as shown by the arrow in Fig. 5. In this way, the adjust rod 75 can move the slope rod 71 when pulled, with the stop rod 73 also shifted at the same time and changing the stopping angle for swinging of the upper connect rod 51. The adjust rod 75 is manually handled, but it can also be controlled electrically, for example by a motor.

In using the walk simulating machine, there are

three modes described below, referring to Figs. 2 and 3.

1. Using it in a horizontal condition. In this condition, the upper connect rod 51 is stopped by the slope adjuster 70 to position vertically as shown in Figs. 3 and 6A. When two feet of a user stand on the pedals 41 with two hands gripping the upper ends of the hand gripping rods 60, the user moves hand gripping rods 60 to let the pedals 41 treaded by the feet move in a walking orbit shown in Fig. 7. The walking orbit is interrupted in case of the upper connect rod 51 coming to contact with the stop rod, so that the lower connect rod 52 swings together in a straight line with the upper connect rod 51 until the upper connect rod 51 contacts with the stop rod 73. At the moment the upper connect rod 51 is stopped immovable by the stop rod 73, the lower connect rod 52 may swing independently with the function of the pivotal point of the upper and the lower connect rod 51 and 52 as an orbit center, forming the walking orbit shown in Fig. 7.

2. Using it in a sloping-up condition. In this condition, the stop rod 73 is moved rearward by handling the adjust rod 75 and fixed in that position. Then the walking orbit formed by the pedals 41 will be the one shown in Figs. 8 and 6B, with the front section



of the orbit bending up as shown in Fig. 9. Thus, a user can get training as if walking up a slope.

3. Using it in a sloping-down. In this condition, the stop rod 73 is moved forward and secured stably in that position as shown in Figs. 6C and 10. Then the walking orbit of the pedals 41 has its front end sloping down, as shown in Fig. 11, and a user can use the walking simulating machine for training of walking down a slope.

As the upper connect rod 51 has a stage of swaying and a stage of stopping by means of the stop rod 73 located in front of the upper connect rod 51, so the center of the walking orbit of the lower connect rod 52 during the straight movement is different from that during non-straight line movement. Therefore the walking orbit formed by the pedals 41 may have its front end portion bending up a little, forcing the user to land on the ground with his heels first when training walking in this condition, with the user's posture being in a stable condition conforming to ergonomics. Furthermore, in the sloping-up and the sloping-down condition of the walking simulating machine, the walking orbit formed by the pedals 41 is also the same as the horizontal condition, with the front end portion bending up a little, obtaining better function than the conventional walking simulating

machine. In addition, when the sloping-up angle is adjusted to the largest, the upper connect rod 51 has no swaying stage, while the lower connect rod 52 has a swaying stage. On the contrary, when the  
5 sloping-down angle is adjusted to the largest, the upper and the lower connect rod 51 and 52 sway synchronously in the whole orbit.

Lastly, referring to Fig. 9, as the upper end of the hand connect rod 60 moves in an S shape in the  
10 walking orbit, it is easy for the user to use more manual force.

While the preferred embodiment of the invention has been described above, it will be recognized and understood that various modifications may be made  
15 therein and the appended claims are intended to cover all such modifications that may fall within the spirit and scope of the invention.